If after passing the quantitative fit test, the employee subsequently notifies the supervisor, safety officer or program administrator that the fit of the respirator is unacceptable. The employee will be given a reasonable opportunity to select a different respirator facepiece and be retested.

The fit test will be administered using OSHA-acceptance quantitative protocols. The accepted practices and methods established by the Salisbury Fire Department can be found in Appendix A of this policy.

USE OF SCBA

Use of the SCBA is mandatory in the following areas and/or situations:

- the atmosphere is contained or hazardous.
- the atmosphere can be expected to become contaminated or hazardous.
- areas above grade during fire fighting activity such as roof work and in upper floors.
- areas below grade during fire fighting activities such as in culverts and basements.
- areas that cannot be quickly evacuated, such as confined spaces.
- situations involving active fires with personnel activity on the fireground.
- situations of potential explosion including natural gas or propane gas leaks, fuel leaks, flammable atmospheres, etc.
- where products of combustions are visible including dumpster fires, automobile fires, etc.
- where invisible contaminants are suspect of being released, such as carbon monoxide during overhaul, investigations, etc.
- any confined space not tested to establish concentration levels.
- any situation involving heated gases or atmospheres.
- areas suspected of containing dangerous particulate matter such as asbestos removal areas, etc.

Note: Use of SCBA indicates the unit being properly on one's back , mask fitted on face, and breathing air from the cylinder.

Premature removal of SCBA must be avoided at all times. This is particularly significant during overhaul operations when smoldering materials may produce high quantities of carbon monoxide and other toxic gases. Unless a sample of the atmosphere indicates the carbon monoxide levels are below 50 parts-per-million (PPM), SCBA must be in use. If sampling equ9ipment is not available, the atmosphere must be cleared by using positive pressure ventilation methods for a reasonable amount of time after to combustion process has ceased.

The decision to remove SCBA will be made by the on scene safety officer or company officer, with approval of the on-scene incident commander, based on an evaluation and monitoring of conditions. Prior to removal of SCBA, the fire areas will be thoroughly ventilated, and supported with continual mechanical ventilation.

DONNING SCBA

Refer to Training Manual Policy 3.06.07 for donning procedures for both approved styles of SCBA.

ENTRY ACCOUNTABILITY AND THE BUDDY SYSTEM

When using SCBA, at least two firefighters will work together as a team and will maintain visual, audible, or physical communications at all times. If space limitations require that even a brief separation result, a life line (rope) will be attached to the entering personnel. This life line will be monitored by sufficient personnel.

Entry teams will advise as they enter or exit an area that is contaminated or suspected of being contaminated. For example: If Quint 1 is first on the scene of a structure that is filled with smoke, and no other units have arrived, they will await the arrival of other units unless a rescue is imminent. Quint 1 will advise ROWAN that they will be entering. "QUINT 1 TO ROWAN, TWO PERSONNEL ENTERING". If other units are on the scene, Quint 1 will advise COMMAND that they are entering "QUINT 1 TO COMMAND, QUINT 1 ENTERING WITH THREE PERSONNEL. If Quint 1 is working within an established division, then Quint 1 will advise the division/group

leader that they are entering. Advisements should be made to the closest unit that can at least mentally note the entering teams and be prepared to assist if necessary.

The above advisement activities will continue even after accountability system has been established and put into operation. (See 3.12.05 for Personnel Accountability Tag System)

SCBA CARE AND MAINTENANCE

Self-Contained Breathing Apparatus care and inspection is the responsibility of the daily wearer. If a particular unit is not assigned to a firefighter for that shift, the company officer will assure the unit receives a daily inspection.

The daily inspection, weekly inspection, and care and maintenance procedures are detailed in Training Manual 3.03.07. If an SCBA is found to be defective, damaged, or malfunctioning, it will be taken out of service immediately, and marked "OUT OF SERVICE". Only trained personnel and vendors who have been certified by the SCBA manufacturer will conduct various repairs and diagnostic procedures. Proper documentation will be completed on all repairs, annual maintenance, etc. Out of service units will be transferred to the Safety Officer or his/her designee, identified as to the noted damage or malfunctions, and returned to the manufacture for repairs.

In all cases, repairs will be followed by a flow test with the results being recorded and filed by the Safety Officer before releasing the unit back to service, to assure the unit operates to regulatory standards. All SCBA units will be flow tested on an annual basis, during the annual maintenance and testing period. Testing will be conducted by contracted services.

Any SCBA unit found to be damaged beyond repair will be removed from service and destroyed accordingly.

AIR QUALITY PROCEDURES

The air quality procedures for breathing air will follow the standards established in NFPA 1989 and all breathing air (compressors) will be tested at a minimum quarterly by an accredited laboratory. Breathing air samples will also be collected if contamination is suspected to have occurred with the breathing air compressors, stored compressed air cylinders and/or SCBA cylinders.

The third party vendor will collect all air samples, submit them for testing and have them returned to the Salisbury Fire Department for review and record keeping., All records will remain on file with the Salisbury Fire Department for a period not less than five (5) years.

Additionally the Salisbury Fire Department Safety Officer will receive copies of air quality testing reports conducted by any agency in which the Salisbury Fire Department may receive mutual aid for the need of breathing air, i.e. Rowan County Mobile Air Supply System. These records will also be in accordance with NFPA 1989 and be maintained for a period of not less than five (5) years.

TRAINING AND EDUCATION

All fire department personnel who are expected to use SCBA will be trained in its use, inspection, donning, cleaning, and special operations.

Initial training will include all NFPA 1001 SCBA competencies for firefighters, consisting of 36 hours.

Annual refresher training will be conducted to include at a minimum advanced SCBA operations, air consumption testing, special and emergency operations, and unit/procedural up-dates. Additionally, annual evaluation will be conducted for each Employee who function in SCBA, as to the proper donning and operations of SCBA, and as to the high level of proficiency expected in it use. Members will also demonstrate their proficiency in care, inspection, and SCBA cleaning.

SPECIAL OPERATIONS

Personnel may encounter various special operational aspects during use of SCBA. These may include situations in which firefighters find themselves trapped or run out of air. Ideally this should never happen. Realistically however, it can happen. Proper training and practice in emergency procedures will assure the firefighter is prepared to react appropriately when faced in such dangerous situations.

LOW AIR SUPPLY: The SCBA will alert the wearer that approximately 1000 psi of air is remaining in the cylinder through the automatic activation of a vibrating mask. When hearing/feeling the vibration, the firefighter must alert his team and all exit the area or structure. One cannot assume that any specific amount of time is still available once the vibration activates as persons breathe at different rates. Therefore immediate exit is necessary. As the cylinder is refilled or replaced, the team can then be available to re-enter.

SCBA MALFUNCTION: Should the SCBA malfunction, the firefighter must alert his team and all exit the area or structure immediately. Should a malfunction result in a total loss of air, or a broken seal of the mask, see the below procedures.

LOST WITHIN: THIS IS AN EMERGENCY SITUATION, First remain calm and react in a manner that will help you to survive. Notify Command by initiating a "May-Day" via the radio and inform him/her of your location and surroundings and your last movements. Activate the emergency button on the portable radio if necessary. Activate the PASS device. Remain low, and breathe as to conserve air. Exertion and panic of course will cause the firefighter to require more air. Yelling is not effective. The PASS device is louder and can be picked-up by rescuers quicker than voice. Do no remove the mask simply because you are lost.

TRAPPE WITHIN: THIS IS AN EMERGENCY CONDITION: Since being trapped usually indicates that movement is limited, the affected firefighter should make attempts to free himself only after initiating a "May-Day". Activate the emergency button on the portable radio if necessary. Activate your PASS device. Stay calm and breathe in a manner to conserve air. Thrashing or violent movements may break the SCBA unit, the mask or seal, and use a great deal of air. Removal of some specific equipment may be required including a boot, head gear, pants, etc. However, do no remove the SCBA mask.

NO AIR: THIS IS AN EMERGENCY CONDITION: First, remain calm. Make notification to your team. You or team members should notify the Division officer and/or COMMAND issuing a "May-Day". Activate the emergency button on the portable radio if necessary. Activate the PASS device. Open the bypass valve, which may provide a couple of breaths and check the valve on your bottle to assure it is in the open position. Stay low. The type of SCBA Salisbury Fire Department uses does provide a means of buddy breathing which may be utilized in extreme situations. Removing the mask is the very last resort, but in doing so, expect the worst breathing conditions to exist resulting in unconsciousness and/or death.

LOSS OF SEAL/BROKEN MASK: THIS IS AN EMERGENCY CONDITION: Remain calm. Due to the positive pressure status of the SCBA, the air volume will be quickly diminished. If seal is broken from face, readjust mask to regain seal if possible. If mask is broken, or seal cannot be regained, notify team members to exit the area or structure immediately. If unable to exit, initiate a "May-Day" and activate the emergency button on the portable radio if necessary. Activate PASS Device. Place a gloved hand over the affected area to attempt to reduce incoming contaminants. Stay low, and breathe as to reduce respiratory system exposure to contamination. Don't remove the mask until in a clear atmosphere, as the positive pressure system will provide at least some fresh air to the wearer as long as the mask is on.

Appendix A

QUANATATIVE FIT TEST (QNTF): An assessment of the adequacy of respirator fit that uses numerical measurement of the amount of leakage in the respirator.

OSHA: The Occupational Safety and Health Administration, an agency of the US government under the Department of Labor with the responsibility of ensuring safety at work and a healthful work environment.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA): The NFPA mission is to reduce the worldwide burden of fire and other hazards on the quality of life by developing and advocating consensus codes and standards, research, training, and education.

NEGATIVE PRESSURE TEST (NPT): This Negative Pressure Test checks the presence and functioning of the respirator exhalation valve as well as potential leakage due to improper cartridge seal or Respirator/face fit. The test is performed to help the wearer assess respirator function and to find gross leaks between the face and the face piece. OSHA standards [29 CFR 1910.134 (E) (5) (I] require this negative pressure test or a positive pressure test prior to use of any respirator in a contaminated or potentially contaminated atmosphere.

CONTROLLED NEGATIVE PRESSURE: Controlled Negative Pressure technology uses pressure wave propagation instead of particle migration to measure mask leaks.

OHD FIT TESTER 3000: The OHD Fit Tester 3000 is a highly specialized instrument which utilizes the "CNP" (Controlled Negative Pressure) technology to directly measure respirator leakage. The OHD Fit Tester 3000 is accepted by OSHA and appears in the Federal Regulations governing fit testing [29 CFR 1910.134]. The Fit Tester 3000 is also included in the Canadian Standards [Z94.4-02] and UK HSE Standards [EN132-149].

OHD 3000 Fit tester
Occupational Health Dynamics
2635 Valleydale Road, Suite 100
Birmingham, AL 35244
Serial Number 0888

TESTING REFERENCE INFORMATION

OSHA standard on mask fit testing:

***Part Number:**	1910
***Part Title:**	Occupational Safety and Health Standards
***Subpart:**	I
***Subpart Title:**	Personal Protective Equipment
***Standard Number:**	1910.134 App A
***Title:**	Fit Testing Procedures (Mandatory).

Appendix A to 1910.134: Fit Testing Procedures (Mandatory)

CNP REDON Quantitative Fit Testing Protocol

Exercise	Exercise Procedure	Measurement procedure
Facing Forward	**Stand and breathe normally, without talking, for 30 seconds.**	**Face forward, while holding breath for 10 seconds.**
Bending Over	**Bend at the waist, as if going to touch his or her toes, for 30 seconds.**	**Face parallel to the floor, while holding breath for 10 seconds.**
Head Shaking	**For about three seconds, shake head back and forth vigorously several times while shouting.**	**Face forward, while holding breath for 10 seconds.**
REDON 1	**Remove the respirator mask, loosen all facepiece straps, and then redon the respirator mask.**	**Face forward, while holding breath for 10 seconds.**
REDON 1	**Remove the respirator mask, loosen all facepiece straps, and then redon the respirator mask again.**	**Face forward, while holding breath for 10 seconds.**

NFPA 2007 rules on QNTF:

7.12 Fit Testing

7.12.1* The facepiece seal capability of each member qualified to use RPE shall be verified by quantitative fit testing on an annual basis and whenever new types of RPE or face pieces are issued.

7.12.2 The fit of the RPE of each new member shall be tested before the members are permitted to use RPE in a hazardous atmosphere.

7.12.2.1 Only members with a properly fitted facepiece shall be permitted by the fire department to function in a hazardous atmosphere with RPE.

7.12.3 Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators shall be accomplished by performing quantitative fit testing in the negative-pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

7.12.4* Quantitative test protocols shall be conducted as required by the AHJ.

7.12.5 Records of facepiece fitting tests shall include at least the following information:
(1) Name of the member tested
(2) Type of fitting test performed
(3) Specific make and model of face pieces tested
(4) Pass/fail results of the tests

7.12.6* For departments that perform quantitative fitting tests, the protection factor produced shall be at least 500 for negative-pressure face pieces for the person to pass the fitting test with that make of full facepiece.

GENERAL GUIDELINES:

The test unit is OHD Fit Tester 3000. Serial number 0888
The test method for SCBA mask, using the OSHA "Re-Don" test procedures.

All Salisbury Fire Department personnel subject to wearing a respiratory, SCBA or the likes of will be subject to a quantitative fit testing of mask.

Personnel subject to fit testing includes:

- All regular fire control and staff assigned a mask and regulator
- Part-time fire control workers
- Interns/Volunteers who are allowed to wear SCBA or respirators
- Any personnel who are sponsored by the Salisbury Fire Department Training such as Recruit School

TEST FREQUENCY:

Frequency:

- At the initial start of employment as part of the orientation program and before an employee is approved to wear an SCBA
- Annually at the time annual physicals are performed
- After any facial surgery has been done
- Lose or replacement of teeth with dentures
- After any major weight gain or loss of 20 pounds or more
- Anytime a problem with maintaining a seal with mask is detected
- When issued a new mask or new model of mask
- Change in breathing equipment models, brands

- A test may be preformed anytime when one is requested

RESPONSIBILITIES:

Shift Commanders are charged with scheduling all SFD shift personnel for their fit test with the Program Manager who has the charge of testing all individuals. The Safety Officer will be responsible for scheduling all Part-Time personnel for Physicals and Fit-Test.

PRE-TEST REQUIREMENTS:

The test subject should be clean shaven and have no facial hair, oils or makeup on for the test. The test subject will report to the test with their assigned mask, clean and in good condition for the test.

TESTER RESPONSIBILITIES:

The test day will always start with a calibration of the dual tube on the Fit Tester 3000.

The tester will ensure the test results are maintained in the database as well as a check-off list of testing for all personnel in a spreadsheet file.

Upon a successful test a copy of the results are stored in a testing software database as a copy of the test results are printed and signed by the tester. The tester will then forward the signed copy to the Safety Officer.

TESTTING REQUIREMENTS:

The fit test will be done using the OHD Fit Tester 3000 and the proper mask test adaptor.

The test will be conducted until all steps for the Re-Don test procedures have been successfully completed.

The test subject will have to be able to hold his/her breath for 8 seconds for each step of the testing.

FIT TESTER OHD 3000 MAINTENANCE:

An annual calibration of the OHD Fit Tester will be conducted. This will be done by the factory.

SUMMARY: The utilization of SCBA in itself indicates that there are some dangerous situations that the firefighter may become involved. Only thoroughly trained and prepared firefighters will master the operation of working with SCBA. The above policy provides specific guidelines and suggested operational procedures for firefighters to be safe and prevent the possibility of endangering their respiratory health.

REFERENCES:

IFSTA Self-Contained Breathing Apparatus Second Edition

IFSTA Fire Department Occupational Safety and Health Second Edition

NFPA 1500, Fire Department Occupational Safety and Health Program

NFPA 1989, Fire Department Air Quality Requirements

NFPA 1404, Standard for a SCBA Program

1910.134 Occupational Safety and Health- NC Department of Labor

Appendix "D"

Pre-Determined Assignment Policy

SALISBURY FIRE DEPARTMENT	STANDARD OPERATING GUIDELINES	
	Effective Date : 03/22/07 Revision Date: 08/27/08	POLICY NUMBER: 6.03.15
SECTION: INCIDENT OPERATIONS	SECTION TITLE: INITIAL COMPANY OPERATIONS	

INITIAL COMPANY OPERATIONS

Purpose:

To establish guidelines for the initial arriving companies operating at a structure fire and ensure the minimum acceptable level of safety and accountability of personnel that is consistent with NFPA 1500 6.4 and OSHA Respiratory Protection Standard 29 CFR 1910.134.

Introduction:

The Salisbury Fire Department is committed to firefighter safety and has developed guidelines for the initial arriving companies to address the safety of firefighters, rescue of lost or trapped occupants, exposure protection, extinguishment and confinement of the fire and ventilation.

Site specific guidelines are found with-in other policies in the Standard Operating Guidelines. The guidelines specified here will address general guidelines not specific to other policies.

Procedure

Multi-company responses: when more than one unit is responding from a single location (training site) or station, a quint when possible should lead the response. This will allow the quint the best access to a building and prevent being blocked by other apparatus. The exception to this procedure would be a staff vehicle that can quickly maneuver out of the way on the scene and can provide additional orders for the first in units.

Definitions:

Immediately Dangerous to Life or Health (IDLH): An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

- Anytime a firefighter dons his/her respirator they will be considered to be in an IDLH atmosphere.

F.A.S.T. (Firefighter Assist Safety Team) TRUCK: The F.A.S.T. TRUCK is defined as the second arriving unit assigned to function as the initial Rapid Intervention Group and provide a minimum of two personnel capable of initiating a rescue of interior crews. If/when four person companies are available to provide this function two other members may initiate ventilation, set ladders and force entry, secure utilities or provide other outside Truck Company functions deemed necessary for the incident. Three person companies will remain intact as one. Later arriving companies may assigned as a Rapid Intervention Crew as outlined in Policy 6.03.14.

Arrival: see figure 1

The first arriving unit should respond to the address (A) side of the building and provide engine company functions by taking a position that will allow for use of hose lines and (aerial device if applicable). All Quint Companies should give consideration to collapse zones with positioning near the corners of the building. All Salisbury Quints are rear mounted aerials and should be positioned with the turntable near the corner to allow access to two sides of the building where practical. The first arriving unit (Quint, Engine) will assume Engine Company functions by establishing a water supply and advancing hose lines. Engine Companies (when arriving first) should position in a manner which will allow access for Quints to access the "A" side for ladder operations if needed.

Note: First arriving Engines should not make entry until a F.A.S.T. TRUCK is in position, unless an imminent rescue is known to be present and then it will be announced over the radio that the crew is entering an IDLH atmosphere for a possible rescue.

Communications Example:

- Quint 2 is on the scene, (size-up report). Quint 2 has a probable rescue and will be entering with two personnel "A" side.

The second due unit should respond and spot the apparatus in a manner which allows for quick access to the interior crews and where feasible also provides a second side of the building that will allow for use of the aerial device if applicable. This company will assume **F.A.S.T. TRUCK** functions and provide an initial Rapid Intervention Crew capable of protecting/rescuing the initial hose team and interior crews. Functions may include ventilation, forcible entry, and laddering of upper floors as required for the interior team's safety and/or pulling safety lines from the working engine.

Communications Example:

- Quint 4 to Quint 1, F.A.S.T. Truck established
- Quint 1 to Quint 4, Copy F.A.S.T. established, entering on the "A" side.

Requirements of the F.A.S.T. Truck

- **Four person companies**:
  - Two members will monitor all radio traffic of the interior crews and provide a protection line to protect the egress of the interior team in the event firefighter(s) safety is compromised.
  - Two members will address ventilation, forcible entry, laddering of upper floors, utilities and other outside team functions imperative to the safety of interior crews.
- **Three person companies**:
  - Three members will monitor all radio traffic of the interior crews and provide a protection line to protect the egress of the interior team in the event firefighter(s) safety is compromised.

The third due unit will perform rescue operations and take a position on the "B" or "D" side of the building where practical. Search and Rescue of trapped or missing occupants will be priority.

The fourth due unit will perform engine company functions by establishing a secondary water supply and extending hose lines to protect the point of egress for interior operations or provide exposure protection if/where required. A position on the "B" or "D" side of the building will provide use of aerial devices if applicable.

The fifth due unit will perform truck company functions and provide ventilation (horizontal or vertical), forcible entry, lighting, utility control, master streams, search and rescue etc. as dictated by the incident.

Subsequent arriving units will report to level 1 staging and await orders from the commanding officer.

Apparatus staged at these locations may not always be utilized in this position but this will allow coverage on all sides in the event the incident goes defensive. The exception to this procedure will be in neighborhoods in which they are not arranged for access by apparatus on the B, C, and D sides of the building. Apparatus must simply follow accepted staging procedures in a location within 1 block of the incident and operate off of the working apparatus in these cases.

Figure 1: Sample of a single story structure with access to all four sides